

REMARKS

This response is submitted in response to the Office Action dated March 25, 2003, and respectfully requests that the Examiner reconsider the rejection of the claims as set forth therein.

Allowable Subject Matter: Claims 24-27

The Examiner has allowed claims 24-27.

At the outset, prior to addressing the merits of the issues raised in the Office Action, the applicants call to the Examiner's attention that, although it was not required by the Examiner, claim 9 has been amended to replace the limitation "each of said signal line regions and said pixel aperture regions of these alignment layers undergoes a *stipulated* alignment process" with --each of said signal line regions and said pixel aperture regions of these alignment layers undergoes a *controlled* alignment process-- to enhance the recitation of the claim. The amendment to claim 9 is supported by FIGS. 10, 11 and 17 which show that alignment of the liquid crystal molecules is controlled. Therefore, no new matter has been added.

The applicants note that claims 10 and 11, which are withdrawn in view of a restriction requirement, have the identical limitation of "a stipulated alignment process". Since claim 1 is a generic or linking claim, the applicants respectfully request that, in the event that claim 1 is allowed, the Examiner issue an Examiner's amendment to make the analogous changes to claims 10 and 11 with any Notice of Allowance that would include claims 10 and 11.

35 U.S.C. 103(a) Rejections: Claims 1-2, 5-6, 9, 12, 15-16, 19-20 and 23

The Examiner now rejects only claims 1-2, 5-6, 9, 12, 15-16, 19-20 and 23 under 35 U.S.C. 103(a) as being unpatentable over Ohta et al. (US 6,064,460 – filed May 15, 1998 – issued May 16, 2000) in view of Numano et al (US 6,313,898 B1 – filed December 15, 1998 – issued November 6, 2001).

In the applicants' response, the applicants had amended claim 1 to define the pixel aperture region as follows: "said pixels including apertures, said apertures and a part of said pixel electrodes defining pixel aperture regions".

The applicants argued that therefore, the orientation of the alignment direction of the second alignment layer at the signal line regions differs from the alignment direction of the second alignment layer *at the pixel aperture regions, which include only a part of the pixel electrode and not the entire pixel electrode as is the case in Numano et al.*

The applicants noted that in Numano et al, FIG. 7, the direction of orientation of the liquid crystal molecules is changed at the signal wiring regions 7 as compared to the direction of orientation at the adjacent pixel electrodes 12 and 12a (shown in FIG. 11(a) of Numano et al). In Numano et al, FIG. 7, there is no pixel aperture region which includes the pixel aperture and a part of the pixel electrodes, as recited by claim 1. The pixel electrodes 12 and 12a each occupy the entire respective pixel aperture.

The applicants concluded that neither Ohta et al, nor Numano et al, taken alone or in combination, disclose, teach or suggest alignment direction of said second alignment layer at said signal line regions differing from alignment direction of said second alignment layer at said pixel aperture regions, nor pixel

aperture regions which include only a part of the pixel electrode, as recited by claim 1.

The Examiner now asserts that Ohta et al disclose all of the limitations of claims 1, 5, 15, 19, and 23, except that Ohta et al do not disclose that the alignment process is carried out such that the alignment layer of a pixel aperture region is different from a signal line region.

The Examiner then asserts that Numano et al in FIG. 7 disclose that alignment of alignment layers differs at regions (19a) of signal lines (7) and their vicinities (e.g., pixel aperture region).

The Examiner maintains that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ohta et al having an alignment layer in which liquid crystal molecules at a pixel region are aligned differently from liquid crystal molecules at a signal line region, as recited by claim 1.

In response, the applicants respectfully maintain that the Examiner has not fully considered the applicants arguments in favor of claim 1, in that the orientation of the alignment direction of the second alignment layer at the signal line regions differs from the alignment direction of the second alignment layer *at the pixel aperture regions, which include only a part of the pixel electrode and not the entire pixel electrode as is the case in Numano et al.*

Neither Ohta et al, nor Numano et al, taken alone or in combination, disclose, teach or suggest alignment direction of said second alignment layer at said signal line regions differing from alignment direction of said second alignment layer at said pixel aperture regions, nor pixel aperture regions which include only a part of the pixel electrode, as recited by claim 1.

Even if one of ordinary skill in the art were to somehow combine the in-plane switching device of Ohta et al with the alignment layers of Numano et al, the hypothetical device resulting from such a combination would not yield the present invention of claim 1.

Therefore, claims 1, 5, 15, 19 and 23 patentably distinguish over Ohta et al in view of Numano et al, taken alone or in combination.

As a result, the applicants respectfully request the Examiner to withdraw the rejections of claims 1, 5, 15, 19 and 23.

35 U.S.C. 103(a) Rejections: Claims 2, 6, 9, 12, 16 and 20

The Examiner has again rejected claims 2, 6, 9, 12, 16 and 20 as being unpatentable over Ohta et al in view of knowledge notoriously well known in the art to reduce a driving voltage in a LCD device by using liquid crystal molecules having a positive dielectric constant anisotropy.

The Examiner asserts that the combination of Ohta et al and Numano et al does show the alignment layer process occurring in the signal line regions and the pixel aperture regions. The Examiner asserts further that such claims would have been obvious in view of the notoriously well known knowledge in the LCD art.

In response, the applicants maintain that the notoriously well known knowledge cited by the Examiner does not overcome the deficiencies of Ohta et al with respect to claim 1 and therefore, claims 2, 6, 9, 12, 16 and 20 patentably distinguish over Ohta et al in view of the notoriously well known knowledge cited by the Examiner.

Therefore, the applicants request that the Examiner withdraw the rejection under 35 U.S.C. 103(a) of claims 2, 6, 9, 12, 16 and 20.

The foregoing Amendment and Remarks establish the patentable nature of all of the elected claims in the application, i.e., generic claim 1 and elected claims 2, 5-6, 9, 12, 15-16, 20 and 23. Claim 24-27 are allowed. No new matter has been added, and no new issues have been raised, wherefore early and favorable reconsideration and issuance of a Notice of Allowance are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink that reads "Anthony N. Fresco". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

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